Date:  April 2006

I.  Course Name:  Biology of Man II:  
Genetics, Evolution and Environment  
Prefix and Number:  BIO 112  
Credit Hours and Contact Hours:  4 credit hours – 5 contact hours  
Course Description:  
A principles course with a laboratory experience designed for non-science majors.  This  
course approaches basic biological principles with a human orientation.  Genetics,  
reproduction, evolution, and environmental issues are the major topics.  Three hours of lecture  
and two laboratory hours weekly.

II.  COURSE OUTCOMES AND OBJECTIVES  
The broad objective of the course is to introduce the student to the basic biological principles  
of genetics, reproduction, evolution and man's role in the environment.

The following represent more specific objectives for this course:  
1. To briefly review cellular and biochemical principles.  
2. To familiarize the student with the concepts of DNA, RNA, replication, transcription, and  
   translation.  
3. To introduce the student to Mendelian genetics and genetic problem solving.  
4. To acquaint the student to the nature of birth defects (both chromosomal and single gene  
types).  
5. To introduce the student to recombinant DNA, PCR, and Genetic Engineering concepts.  
6. To introduce the concept of evolution, speciation.  
7. To trace the origin of Man.  
8. To introduce the student to environmental concepts and issues.

This course is one of the primary science electives taken for the required science credit for the  
A.A. degree.  It is a required course in the Chemical Dependency Counseling A.A. S. degree.

This course addresses the following college competencies: reading, oral communication and  
writing (in certain circumstances), global awareness, and problem solving.

III.  METHOD OF INSTRUCTION  
Course materials required include a textbook in Human Biology and a laboratory manual  
developed and updated by the biology staff.

Methods of instruction may vary for different instructors and may include:  
1. Lecture  
2. Laboratory experiences (an integral part of the learning experience).  
4. Class projects and presentations.  
5. Papers or summary reports based on articles of interest.

IV.  METHOD OF EVALUATION
1. Tests and quizzes on course topics and laboratory experiences.
2. Lab reports
3. Take-home exams
4. Grades as determined on projects, reports and presentations.

V. COURSE TOPICS
2. Brief overview of inorganic chemistry.
3. Brief overview of organic chemistry
4. Review of protein chemistry and enzyme function.
5. Chemistry of DNA and RNA.
6. Replication, transcription, translation.
9. Recombinant DNA, PCR and Genetic Engineering techniques.
10. Human reproductive systems and birth control.
11. Evolution Principles: Darwin vs. LaMarck, speciation.
12. Biological comparisons of Man to other primates.
13. Evolution of Man (from Austalopithecus to Homo).

Laboratory exercises include:

1. Sex Chromatin Study with Microscopes.
2. Cell Division.
4. DNA and Protein Testing
5. DNA Isolation and Replication
6. Human Genetics (a study of many different human genes)
7. Genetic Problem Solving Techniques
8. Reproductive Systems, Meiosis, Sperm and Egg Development
10. Evolution: Man and Our Closest Relatives, the Apes (2 week exercise)
11. D.O., Coliform, Alkalinity and pH Testing of Water
12. Phosphate Analysis of Water Samples Using a Spectrophotometer
13. Field Trip: Sewage Treatment
14. Air Pollution Study: CO, NO₂, SO₂ Analysis.